

CLAIMS:

1. A ventilating apparatus including a main housing, a thermal exchanger, a first and a second air-moving devices and a removable air-filter,

5 • said main housing includes a front housing, a rear housing, a first and a second air compartments, and a filter compartment,

• said thermal exchanger and said air-moving devices are disposed within said main housing and between said front and rear housings,

10 • said thermal exchanger includes an intake section and an exhaust section,

• said front housing includes at least an aperture connecting to the downstream end or outlet of said intake section of said thermal exchanger.

15 • said first and second air-moving devices are respectively for moving air through said intake and exhaust sections of said thermal exchanger,

20 • said first air compartment connects said intake section of said thermal exchanger, said first air-moving device and said filter compartment such that said filter compartment is disposed upstream of said intake section of said thermal exchanger for removably receiving said air filter,

• said second air compartment connects said exhaust section of said thermal exchanger and said second air-moving device,

25 • a section of said first air compartment upstream of said intake section of said thermal exchanger, being that section of said first air compartment containing said filter compartment, is adjacent to and accessible or communicable through said front housing.

2. A ventilating apparatus of claim 1, wherein said front housing includes an aperture through which said air filter can be inserted into or removed from said filter compartment.
- 5 3. A ventilating apparatus of claim 1, wherein said filter compartment generally extends between said front and rear housings.
4. A ventilating apparatus of claim 1, wherein said main housing includes a longer side extending in a general lengthwise direction and including said front and rear housings and a shorter side generally extending from said front
10 housing towards said rear housing, at least an aperture providing an upstream path to said filter compartment is provided on said shorter side.
5. A ventilating apparatus of claim 1, wherein said filtering plane of said filter generally forms an angle with said front housing.
6. A ventilating apparatus of claim 5, wherein said angle being about 90°.
- 15 7. A ventilating apparatus of claim 1, wherein said first housing further includes at least an aperture connecting to the upstream end of said exhaust section of said thermal exchanger.
8. A ventilating apparatus of claim 7, wherein said front housing includes a detachable member on which said apertures for connecting to said thermal
20 exchanger and said filter compartment are formed.
9. A ventilating apparatus of claim 7, wherein said first air-moving device is disposed intermediate between said air-filter and the upstream end of said intake section of said thermal exchanger.
10. A ventilating apparatus of claim 9, wherein said first air-moving device
25 includes a rotary fan having an axis which is generally perpendicular to said air-filter.

11. A ventilating apparatus of claim 1, wherein said air-filter is disposed intermediate between said first air-moving device and the upstream end of said intake section of said thermal exchanger.
- 5 12. A ventilating apparatus of claim 1, wherein said air-filter includes a combination of activated carbon and HEPA filters.
13. A ventilating apparatus of claim 1, wherein both said first and second air-moving devices are disposed upstream of said intake and exhaust sections of said thermal exchanger.
- 10 14. A ventilating apparatus of claim 1, wherein said first and second air-moving devices include rotary fans driven by a common motor.
15. A ventilating apparatus of claim 1, wherein said first air-moving device includes a combination of a first and a second rotary fans.
- 15 16. A ventilating apparatus of claim 1, said thermal exchanger includes a plurality of stacked metal sheets configured to form a plurality of air-passageways, wherein air-passageways formed on the two sides of said sheet are alternatively connected to said intake and exhaust sections of said thermal exchanger.
- 20 17. A ventilating apparatus of claim 1, wherein the combination of said first and second air moving devices are disposed intermediate between said filter compartment and said thermal exchanger.
- 25 18. A ventilating apparatus for transferring air between a confined space and an external space according to any of the preceding claims, wherein said first aid compartment provides a path for moving air from said external space into said confined space, said second air compartment provides a path for moving air from said external space to said confined space, wherein, when installed for operation, said main housing bridges between said external space and said confined space such that said front housing and said rear housing are present respectively in said confined space and said external space, said aperture on

said front housing downstream of such intake section provides an inlet interface for air to move from said external space to said confined space.

19. A ventilating apparatus for transferring air between a first space and an second space including a main housing, a thermal exchanger, a first and a second air-moving devices and a removable air-filter,

- said main housing includes a front housing, a rear housing, a first and a second air compartments, and a filter compartment,

- said thermal exchanger and said air-moving devices are disposed within said main housing and between said front and rear housings,

- said thermal exchanger includes an intake section and an exhaust section,

- said front housing includes apertures connecting to the downstream end or outlet of said intake section of said thermal exchanger.

- said first and second air-moving devices are respectively for moving air through said intake and exhaust sections of said thermal exchanger,

- said first air compartment connects said intake section of said thermal exchanger, said first air-moving device and said filter compartment such that said filter compartment is disposed upstream of said intake section of said thermal exchanger for removably receiving said air filter,

- said second air compartment connects said exhaust section of said thermal exchanger and said second air-moving device.

- at least a section of said first air compartment upstream of said intake section of said thermal exchanger, being that section of said first air compartment containing said filter compartment, is adjacent to and accessible through said front housing, and

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- said front housing includes an aperture through which said air filter can be inserted into or removed from said filter compartment, wherein,
- when installed for operation, said main housing separates said first and said second spaces so that said front housing and said rear housing are respectively present in said first and said second spaces and apertures on said front housing downstream of such intake section of said thermal exchanger provide an inlet interface for air to move from said first space to said second space.